Next Generation Networks

Fiber Penetration and Copper Access Regulation

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Remarks on the paper (I)

➔ Research question, methodology and messages to take home

- Impact of copper (**legacy networks**) **regulation** (LLU and bitstream) on **NGN adoption**
- Methodology: **fixed effects regression** and **forecasting** with s-curves (logistic)
- Key message: **(excessive) copper regulation discourages NGN adoption (deployment, investments)**, in particular an increase of unbundling access charges and/or a decrease of wholesale access would increase penetration of fibre and cable modem

Remarks on the paper (II)

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➔ The departing point

- "EU countries tend to lag behind other OECD countries" regarding "adoption of ultra-fast broadband":
  - Role of **supply and demand**, is adoption equivalent to deployment? Does regulation impact mainly on deployment, or also on adoption?
  - **Leading countries** have a much more heavy-handed regulation and/or **direct government intervention** in the market … contradictory with the findings in the paper?
  - **Industrial policies vs. pure market competition** (see previous paper)

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Remarks on the paper (III)

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➔ The **causal link** (hypothesis)

- Strong (tight) regulation on legacy networks increases service-based competition
- Increased service-based competition decreases facilities-based competition (deployment)
- Limited facilities-based competition (limited deployment) decreases NGN (ultra-broadband) adoption
- Unclear effects on the incumbent. Several links: through facilities-based competition + direct revenues effects + competition intra (not considered in the paper)

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Remarks on the paper (IV)

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➔ Data and calculations

- Figures on adoption and not on deployment?
- Is FTTx different from xDSL? How did you separate figures on them? (Section 2.1 and others) or maybe it was meant FTTH (many typos!)
- Unbundling access charge … relative to the retail price? Number of indirect accesses is calculated as a ratio however …
- Collinearity? Some correlation between explanatory variables …
- Fiber incumbent market share? Role? Descriptive statistics not provided
- Gaussian distribution?
- Panel data!! Overall correlations not necessarily meaningful
- Watch for mistakes: fixed effects, variables not previously defined
- Too high R-squared … too nice to be true … just time dependent?

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Remarks on the paper (V)

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➔ Results on the impact of copper regulation

- "An increase in unbundling access charges increases the competitiveness of fibre regarding copper" … how? It would depend on consumers' willingness to pay for fiber as they still have incumbent copper
- Results on xDSL not significant? Why? This is the base of the causal link (service-based competition)!
- Overall results on broadband not significant … what does it mean? Is copper regulation not relevant for overall ultra-broadband adoption?
- Why are copper regulation effects shared between fibre and cable? Is facilities-based competion the only relevant mechanism for adoption?
- Results for HHI contradictory with incumbent role through less regulation?

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Remarks on the paper (VI)

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➔ Results on the forecasting exercise

- Previous considerations apply
- Penetration of broadband technologies -> case of the theory of adoption -> s-curve
- Seasonal effects? Smoothing of penetration / adoption data?
- Why xDSL adoption is decreasing over time? ADSL? VDSL?
- What is the "average country"? Is it not a panel anymore?
- How does the model fit with observed data? Prediction 1Q ahead?
- Problems with the market limit (max. penetration), i.e. 100%?
- Scenarios for 2020 forecasting: 1€/monthly increase? 5% wholesale market share decrease / each Q?

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